

Papilio hermione Linnaeus, type species of *Hipparchia* Fabricius (Lepidoptera, Satyrinae): restoring stability to the application of these names

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Abstract. This paper discusses three problems concerning the Woodland Grayling, *Hipparchia fagi* Scopoli, 1763, with respect to the identity and application of the junior name *Papilio hermione* Linnaeus, 1764. In 1977, the late Otakar Kudrna designated a specimen of the Rock Grayling, *Hipparchia alcyone* [Denis & Schiffermüller], 1775, to become the lectotype of *Papilio hermione* – as a result of which *hermione* supplanted *alcyone* as the senior epithet for this species. Because *P. hermione* is the nominal type species of *Hipparchia* Fabricius, 1807, Kudrna’s action rendered this a genus based on a misidentified species. Third, while a majority of lepidopterists have ignored Kudrna’s action and continue to apply the name *H. alcyone* to the Rock Grayling, and still regard *P. hermione* as a junior subjective synonym of *H. fagi*, the formal nomenclature for the Rock Grayling has become unstable because a large minority have nonetheless accepted Kudrna’s lectotype designation and all that follows from it. It is demonstrated here that no syntypes of *Papilio hermione* (or *Papilio fagi*) have survived; consequently, Kudrna’s lectotype designation for *P. hermione* is invalid. By designation of a single specimen of the Woodland Grayling as neotype for both *P. fagi* and *P. hermione*, the two names are rendered objectively synonymous, thereby restoring stability to the species name for the Rock Grayling (as *Hipparchia alcyone*), and to the application of *Papilio hermione* (= *Hipparchia fagi*) as nominal type species of the generic name *Hipparchia*.

Introduction

For over 200 years, *Papilio hermione* Linnaeus, 1764, was universally regarded as a synonym of *Papilio fagi* Scopoli, 1763 – the ‘Woodland Grayling’. The first to make this association was Linnaeus himself, in the 12th edition of “Systema Naturae”, published in 1767. Subsequently, Butler (1868b) validly selected *P. hermione* as the (nominal) type species of *Hipparchia* Fabricius, 1807. Butler made this designation accepting that *P. hermione* was a subjective synonym of *P. fagi*. Scopoli’s name was not among the long list of species included by Fabricius (1807) in his new genus, and was thus ineligible, in its own right, for formal selection.

All was well and stable, apart from two small upsets (detailed later), until the late Otakar Kudrna (1977) designated a specimen of the ‘Rock Grayling’ – then long known as *Hipparchia alcyone* ([Denis & Schiffermüller], 1775) – as a lectotype for *Papilio hermione*. This

was an erroneous designation – with trebly unfortunate consequences, as we elaborate below. However, having said that, Kudrna’s action was not totally unreasonable, as it seems to be the case that Linnaeus muddled together three, or even more species of graylings (*sensu lato*) – and the implication of Butler’s type species designation was not appreciated at the time of Kudrna’s publication.

Below we set out the history of this matter, why Kudrna’s lectotype designation is invalid, the problem of the retrospective misidentification of the type species of *Hipparchia*, the sources of material on which *Papilio hermione* and *Papilio fagi* were based, and offer an objective means to end the continuing instability in the application of Linnaeus’s name – based on designation of a single specimen as neotype for both *P. hermione* and *P. fagi*.

The history of *Papilio hermione* Linnaeus, 1764

The name *Papilio hermione* was based on a specimen or specimens in the collection of Queen Louisa Ulrika (1720–1782) of Sweden, who had asked Linnaeus to catalogue her collections housed at Drottningholm Palace; the name was published by Linnaeus in 1764 (Fig. 1). Three years later, Linnaeus (1767: 773) listed *Papilio fagi* Scopoli, 1763 (Fig. 2) as a synonym of *P. hermione*. Over the following two centuries, the synonymy of these two names for the Woodland Grayling was accepted by most workers. However, some (e.g. Fabricius 1793: 232/3, and Turton 1806: 32) continued to use Linnaeus’s name without any reference to *fagi* [Note however that Aurivillius (1882: 81/82) suggested that Turton’s usage represents a misidentification of *Chazara briseis* (Linnaeus, 1764)]. Others (e.g. Doubleday 1845: 130; Kirby 1871: 86, 705), while explicitly accepting the synonymy, were slow to adopt Scopoli’s *fagi* as the senior name. At that time, priority was less rigidly applied than today.

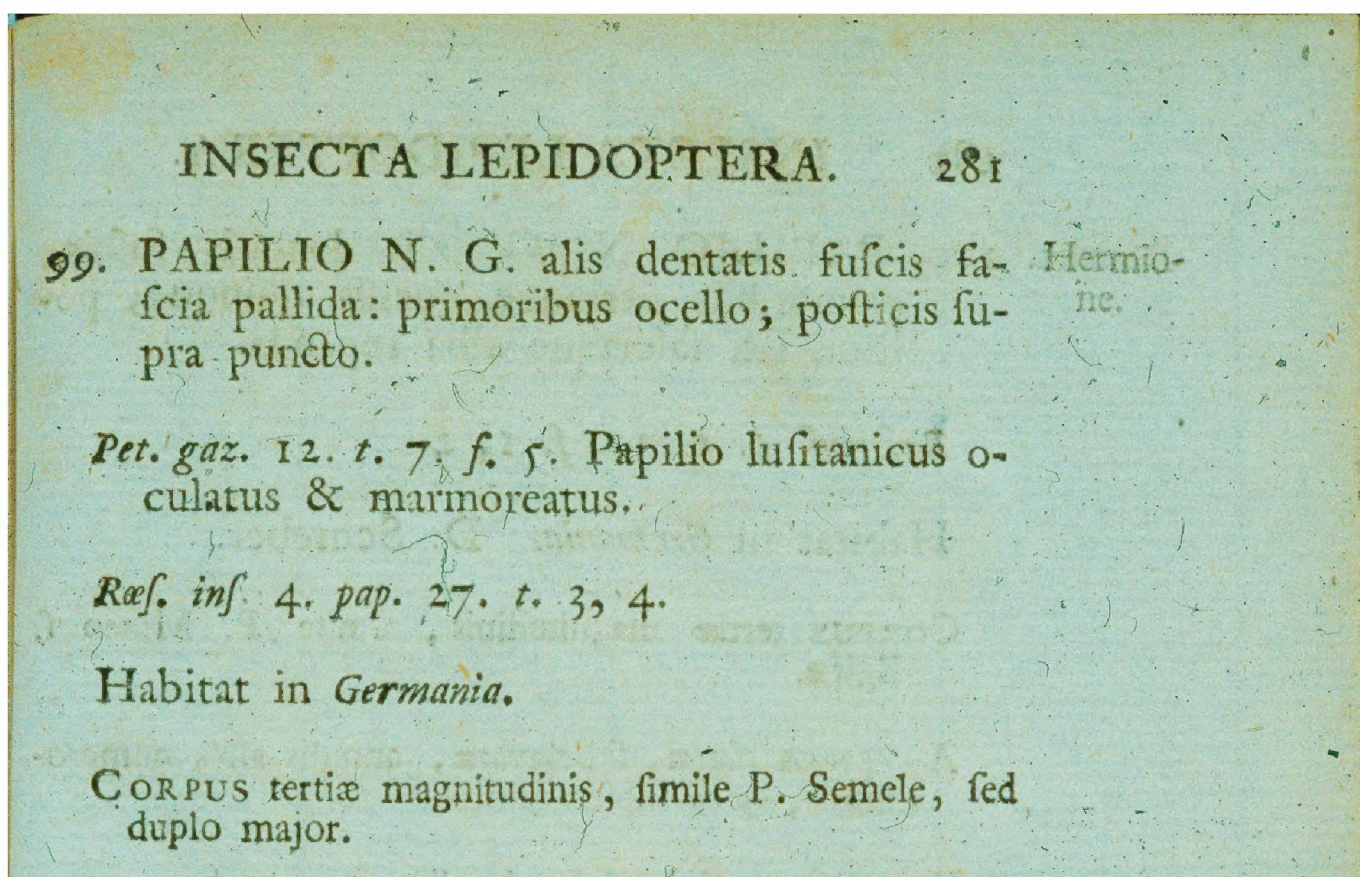


Figure 1. Linnaeus’ synoptic references for *P. hermione* in 1764.

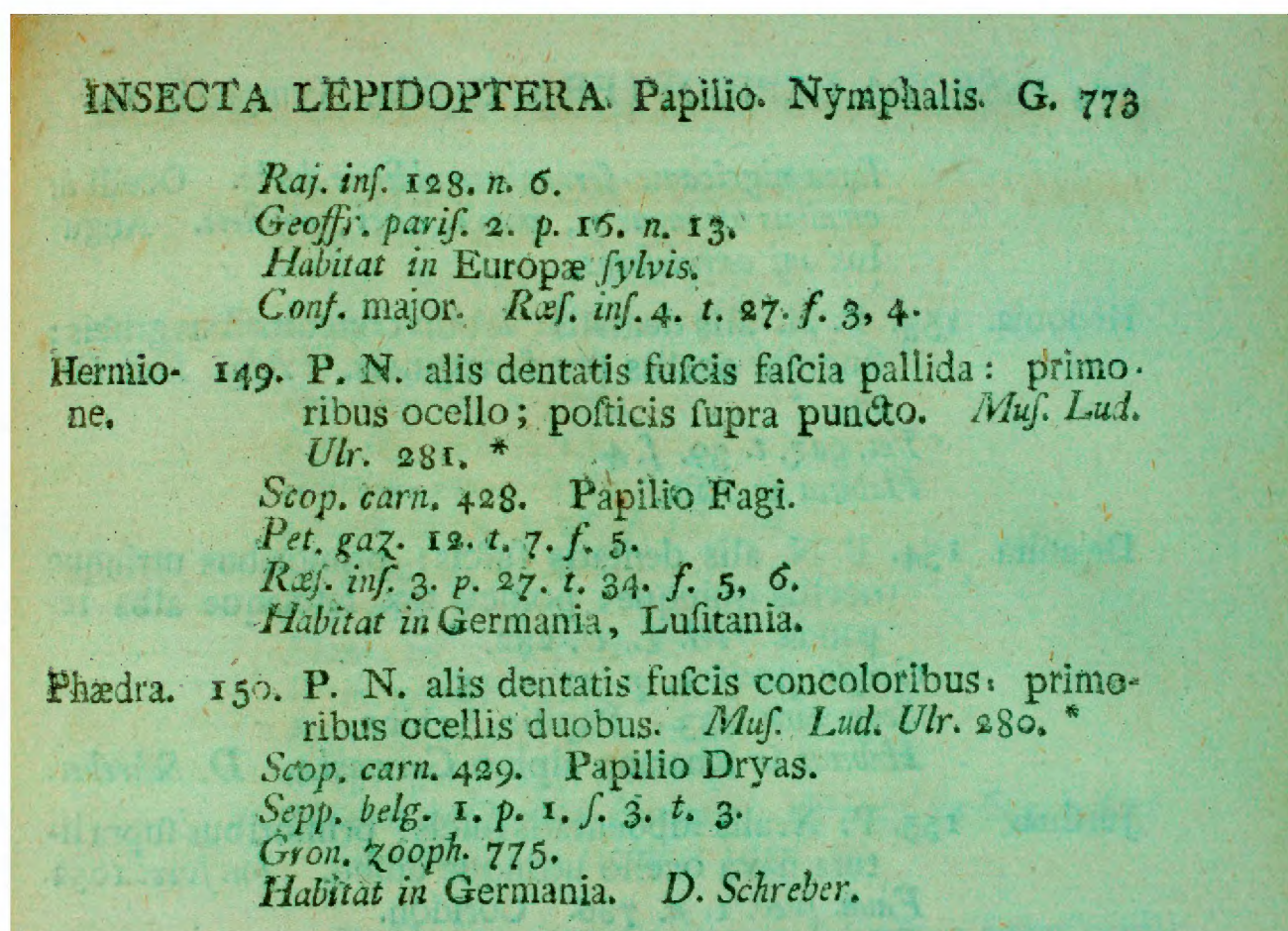


Figure 2. Linnaeus' synoptic references for *P. hermione* in 1767.

Recognising that there were two rather similar grayling species, the Woodland Grayling and the usually smaller Rock Grayling, [Denis and Schiffermüller] (1775), acting as first revisers (ICZN 1999: Article 24.2), accepted that *P. fagi* was applicable to the larger species and proposed the name *Papilio alcyone* for the smaller Rock Grayling. Although the description of *P. fagi* by Scopoli is not definitive (Verity 1913: 158), his associated figure (Fig. 3) is clearly discernible as the larger Woodland Grayling. This nomenclatural synonymy remained stable until Hoffmansegg (1804) realised that Cramer (1775) had used the specific epithet *Papilio alcyone* for a completely different butterfly, the pierid currently known as *Catopsilia pyranthe* (Linnaeus, 1758).

This discovery was largely ignored at first, the nomenclatural synonymy remaining stable, until Hemming (1943) highlighted this problem and suggested that *Papilio aelia* Hoffmansegg, 1804, should replace *alcyone* [Denis & Schiffermüller] as the name for the Rock Grayling. This was accepted by Verity (1953) and Forster and Wohlfahrt (1955). However, for the sake of nomenclatural stability, the International Commission for Zoological Nomenclature (ICZN) subsequently decided that the publication of [Denis and Schiffermüller] (1775) should be considered to predate that of Cramer (1775) (Opinion 516, 1958); thus, stability was restored and *Hipparchia alcyone* remained the accepted name for the Rock Grayling.

Stability was, however, once again upset by the designation of a lectotype for the name *Papilio hermione* by Kudrna (1977: 27) in his revision of the genus *Hipparchia*. Unfortunately, Kudrna decided to go against the then prevailing usage and designated a specimen of *H. alcyone* with a label 'hermione' on the pin in Linnaeus's handwriting. This designation was both unnecessary and invalid, as *hermione* was not then in use, and the specimen designated was not a syntype – as it has to be under the 'code' (ICZN 1999: Article 74.2). When this designation was challenged

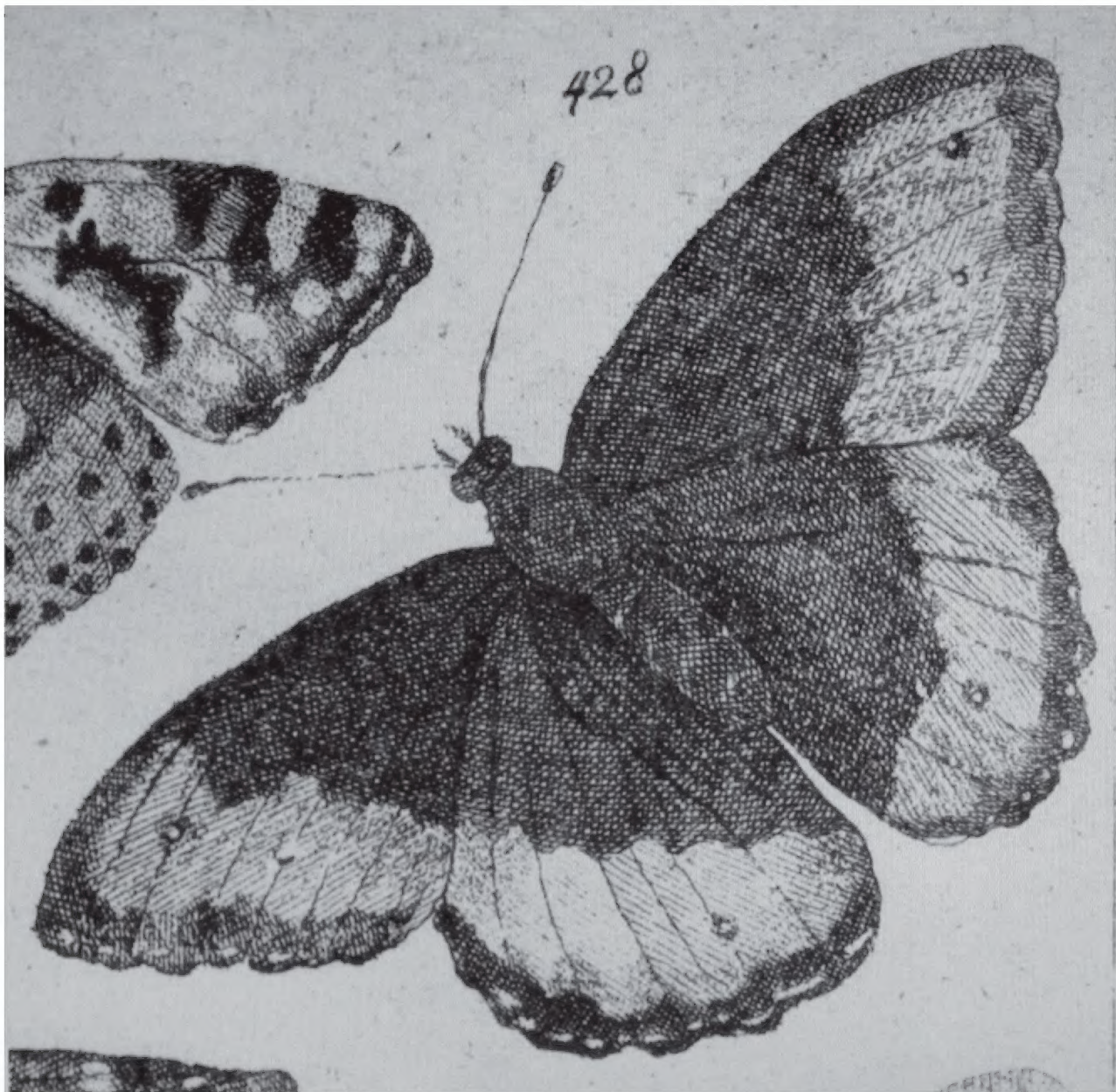


Figure 3. Scopoli's figure of *Papilio fagi*, confirming the identity of his original description published in 1763, this figure was published some time prior to 1785 (Higgins 1963).

by Higgins and Riley (1978), it was suggested by Kudrna (1984) that the specimen could have been removed by Linnaeus from Queen Ulrika's collection (which would place it as a syntype) and added it to his own. There is no proof whatsoever for this contentious statement. A label on a pin has no nomenclatural status, as it is well-known and appreciated that labels can be moved, removed, acquired and placed on the pins of other specimens (Brown 1968: 85; Honey and Scoble 2001: 331). The suggestion by the late Ahmet Ömer Koçak (1983: 168) that the name *hermione* Linnaeus, 1764, should be treated as a *nomen dubium*, because of the apparent lack of any syntypes, which in some ways would seem very reasonable, was not accepted by Kudrna (1984: 234).

What species could Queen Ulrika's *P. hermione* specimens have represented?

Brown (1968: 77) stated that Carl Clerck (1759 & 1764) was commissioned by Linnaeus to paint the butterflies in Queen Ulrika's collections for the sake of posterity, knowing the fragility of butterflies. The two volumes of published paintings were examined but no painting of *Papilio hermione* was found. Brown also stated that there were some unpublished and unbound paintings held by the Library of the Swedish Academy of Sciences in Stockholm; this was confirmed by Maria Dahlbäck (see acknowledgements). The first author visited the Library and examined

these paintings; however, unfortunately, they did not yield a painting of the butterfly named *hermione* either.

Whilst in Sweden, the remnants of the Queen's collection in Uppsala were examined; there was definitely no specimen of *hermione* extant, consistent with the observations of Carl Peter Thunberg (1743–1828), who listed the specimens in the Queen's collection when it arrived at Uppsala in 1803 (Fig. 4; see also Aurivillius 1882).

8	<i>Cimex</i>	<i>acutus.</i> <i>egyptius.</i> <i>andrea.</i> <i>arabs.</i> <i>aulicus.</i> <i>bipunctatus.</i> <i>deustus.</i> <i>fullo.</i> <i>indus.</i> <i>peregrinator.</i> <i>rubicollis.</i> <i>serratus.</i> <i>sempunctatus.</i> <i>Stockerns.</i> <i>stolidus.</i> <i>valgus.</i> <i>variegatus.</i> <i>viridulus.</i>	<i>Papilio</i>	<i>Bolina. α. β.</i> <i>Brasica.</i> <i>Calliope.</i> <i>Carica.</i> <i>cassia.</i> <i>Chrysippus.</i> <i>Cleopatra.</i> <i>Cupido.</i> <i>Cytherea.</i> <i>Daphidice.</i> <i>Deiphobus. α. β.</i> <i>Demolens. α. β.</i> <i>Demophon.</i> <i>Dido.</i> <i>Diomedes.</i> <i>Disfimbilis.</i> <i>Erato.</i> <i>Eurypulus.</i> <i>Euryta.</i> <i>Euterpe.</i> <i>galathen.</i> <i>gliciria.</i> <i>Hector.</i> <i>Helena.</i> <i>Helenus α. β.</i> <i>Horta.</i> <i>Hyperbicus.</i> <i>Iatropha.</i> <i>Idea.</i> <i>Idomeneus.</i> <i>Ilioneus.</i> <i>Lampetia.</i>
	<i>Papilio</i>	<i>Acesta.</i> <i>acbilles.</i> <i>acbine.</i> <i>aneas.</i> <i>aropus.</i> <i>Agamen^{mon}. α. β. γ.</i> <i>Agenor.</i> <i>alimena.</i> <i>almana. α. β. γ.</i> <i>anacardii.</i> <i>anchises.</i> <i>anthemon.</i> <i>Apollo.</i> <i>asfimbilis.</i>		

Figure 4. Page 8 of Thunberg (1804), showing section A–L of his alphabetic listing of *Papilio* specimens in Queen Ulrika's collection at the time of its arrival in Uppsala: *Hermione* is not included.



Figure 5. The series of *Papilio hermione* in C.P. Thunberg's collection in Uppsala, all identifiable as *Hipparchia fagi* (Scopoli, 1763).

The entomological collections of Uppsala University also include Thunberg's own collection, in which he used the names of his mentor (Linnaeus), rather than possibly more appropriate (i.e. earlier) names. Four butterflies included under 'hermione' (Fig. 5; 3♂♂, 1♀) are all considered to be *Hipparchia fagi* originating from old German populations (D. Jutzeler, pers. comm. to first author); Linnaeus (1764: 281) gave 'Germania' as the 'habitat' [type locality] for *Papilio hermione*.

On this slender basis it would seem more likely that Queen Ulrika's specimen or specimens of *P. hermione* represented the species known today as *Papilio fagi* Scopoli, rather than any other grayling butterfly.

Why Kudrna's lectotype designation is invalid

The following points relate to the lectotype designation of Kudrna (1977: 27):

- Linnaeus (1764) based the name *Papilio hermione* on a butterfly specimen or specimens present in the collection of Queen Ulrika of Sweden (see above).
- Linnaeus also cited illustrations by James Petiver (1702, p. 12, pl. 7, fig. 5) and August Johann Rösel von Rosenhof (1761, pl. 27, figs 3, 4; Fig. 1). According to Honey and Scoble (2001: 331), these represent *Hipparchia fidia* (Linnaeus, 1767) (currently known as *Pseudotergumia fidia*) and *Brintesia circe* (Fabricius, 1775), respectively. According to John Chainey (MS), the Petiver material no longer exists, while, according to Horn and Kahle (1936, p. 228), the insect collection of Rösel von Rosenhof is missing (“verschollen”).
- Queen Ulrika's collection fell into neglect following her death in 1782 (Honey and Scoble 2001: 285).
- The Queen's collection was bequeathed by King Gustav to Uppsala University in 1803 and was catalogued by Carl Peter Thunberg (one of Linnaeus's ‘Apostles’ – well-thought of students) on its arrival in Uppsala in 1804, by which time Linnaeus was dead (deceased 1778).
- There was no specimen of *P. hermione* present in the Queen's collection in 1804 (see Fig. 4) and any original specimens must have been a casualty of the aforementioned neglect (see also above).
- There is no credible evidence to suggest that any of the *Hipparchia* specimens in the Linnaean Society of London collection could have come from Queen Ulrika's collection (see above).
- In conclusion, there are no syntypes available for selection of a lectotype for the name *Papilio hermione* Linnaeus; consequently, Kudrna's (1977) designation is invalid.

A second problem created by Kudrna's lectotype designation

Fabricius (1807, pp. 281/2) evidently included 119 species in his new genus *Hipparchia*, explicitly listing nine of these but without indicating a type: *Papilio hermione*, *P. fauna*, *P. maera*, *P. ligea*, *P. epiphron*, *P. galathea*, *P. pilosellae*, *P. hyperanthus*, and *P. rumina*. With the exception of the last (a papilionid), all represent members of the Nymphalidae: Satyrinae, although only two are now included in the genus *Hipparchia* as currently circumscribed: *P. hermione* and *P. fauna*. The first person to make a valid designation of one of these names to be the type species of *Hipparchia* was Butler (1868b, p. 50), who stated “Typical Species *Hipparchia Fagi* (*Hermione*).” As *Papilio fagi* was not included in Fabricius's list, the only possible interpretation of Butler's cryptic statement is that he selected *Papilio hermione* – but in the firm belief that it represented the same taxon as the senior name *Papilio fagi* Scopoli, based no doubt and, as presented above, on Linnaeus's (1767) own synonymy.

An issue affecting this type species designation was clarified by Cowan (1985), who realised that Butler published two papers in the same year that dealt with *Hipparchia*: one in February (Butler 1868a) and the second in July (Butler 1868b). Hemming (1967: 220), while correctly indicating that Butler had selected *Papilio hermione* as type species, incorrectly cited the February paper, not the later work. Koçak (1983: 167) and Kudrna (1984: 229) were thus misled or failed to appreciate that Butler's later publication was the relevant source. As a result, because the first of these papers (Butler 1868a: 194) did not mention or associate *P. hermione* with *Hipparchia fagi*, they rejected

Butler's designation, on the grounds that *Papilio fagi* Scopoli, 1763, was not one of the species listed by Fabricius (1807). However, as Cowan made clear, and as indicated above, Butler's (1868b) later selection of '*Hipparchia Fagi* (*Hermione*)' is valid.

Kudrna's (1977) action, because it broke the synonymy of *P. fagi* and *P. hermione* accepted by Linnaeus (1767) and, critically, Butler (1868b), rendered *Hipparchia* a genus based on a misidentified type species (ICZN 1999, Article 70.3). Rejecting Kudrna's action, together with selection of a single neotype to make *P. hermione* and *P. fagi* objective synonyms (see below), preserves application of the genus *Hipparchia* – as the nominal type species, *Papilio hermione* Linnaeus, is thus now objectively the same taxon as represented by the earlier-established nominal species, *Papilio fagi* Scopoli.

Scopoli's butterflies

None of Scopoli's collection of butterflies is known to have survived; they were almost certainly all lost when his house in Idrija caught fire. A statement by Soban (2005) on the life of Scopoli reports as follows: "Similar misfortunes accompanied him in Idrija where he was to remain for 15 years. He again lost everything in a fire which destroyed his home and all of his family." Thus there are no syntypes of *Papilio fagi* either.

Neotype designation

As there is no surviving type material for the nominal taxa *Papilio hermione* and *P. fagi*, we hereby designate a single specimen of *Hipparchia fagi* (Scopoli, 1763) as neotype for both. The specimen originates from the Austrian state of Styria, a general region where the original material of *P. hermione* ('Germania') and *P. fagi* (Carniola = Krain) could well have come from. In 18th century Europe, Germany consisted of multiple 'Electorates' and 'Kingdoms', including the Archduchy of Austria. Carniola, itself formerly part of the Archduchy, comprised most of present day Slovenia and small areas of Croatia and Italy, and extended north-east as far as Styria, in the southern border region of modern Austria.

The neotype is a fresh male from Kreuzberg (Styria = Steiermark), showing the wing characters typical of the species almost universally known by the name *Hipparchia fagi*. Deposited in the Tiroler Landesmuseen, Innsbruck, Austria (TLMF), the labels on the pin are as follows: on off-white paper printed black: "U. Leutschach Stmk./Kreuzberg – Kleingr[aben]/17.VI 1979 [in purple]/leg. Habeler" [in black]; on black edged white paper printed in black: "TLMF/ Innsbruck/ Slg. H. Habeler/2017-010"; on light blue paper printed in black: "DNA Barcode/TLMF Lep 22537"; on red paper printed in black: "NEOTYPE/ *Papilio fagi* Scopoli 1763 and/ *Papilio hermione* Linnaeus, 1764/Designated Russell and Vane-Wright/2021. Current species name: *Hipparchia fagi* (Scopoli, 1763)". The basic data are thus:

Neotype: AUSTRIA • ♂; Styria, Kreuzberg; 400 m a.s.l.; 17 Jun. 1979; H. Habeler leg.; DNA Barcode/TLMF Lep 22537; TLMF ID no.: 1867722.

Kreuzberg is located about 6 km north of the Slovenian border, and 3 km north of Leutschach in southern Austria, where it rises to 633 m. Kleingraben refers to a valley or small river. The specimen is figured upperside and underside, together with the labels on the pin (Fig. 6A–C, respectively). A specimen of this species was chosen for two reasons: firstly Linnaeus himself made the synonymy

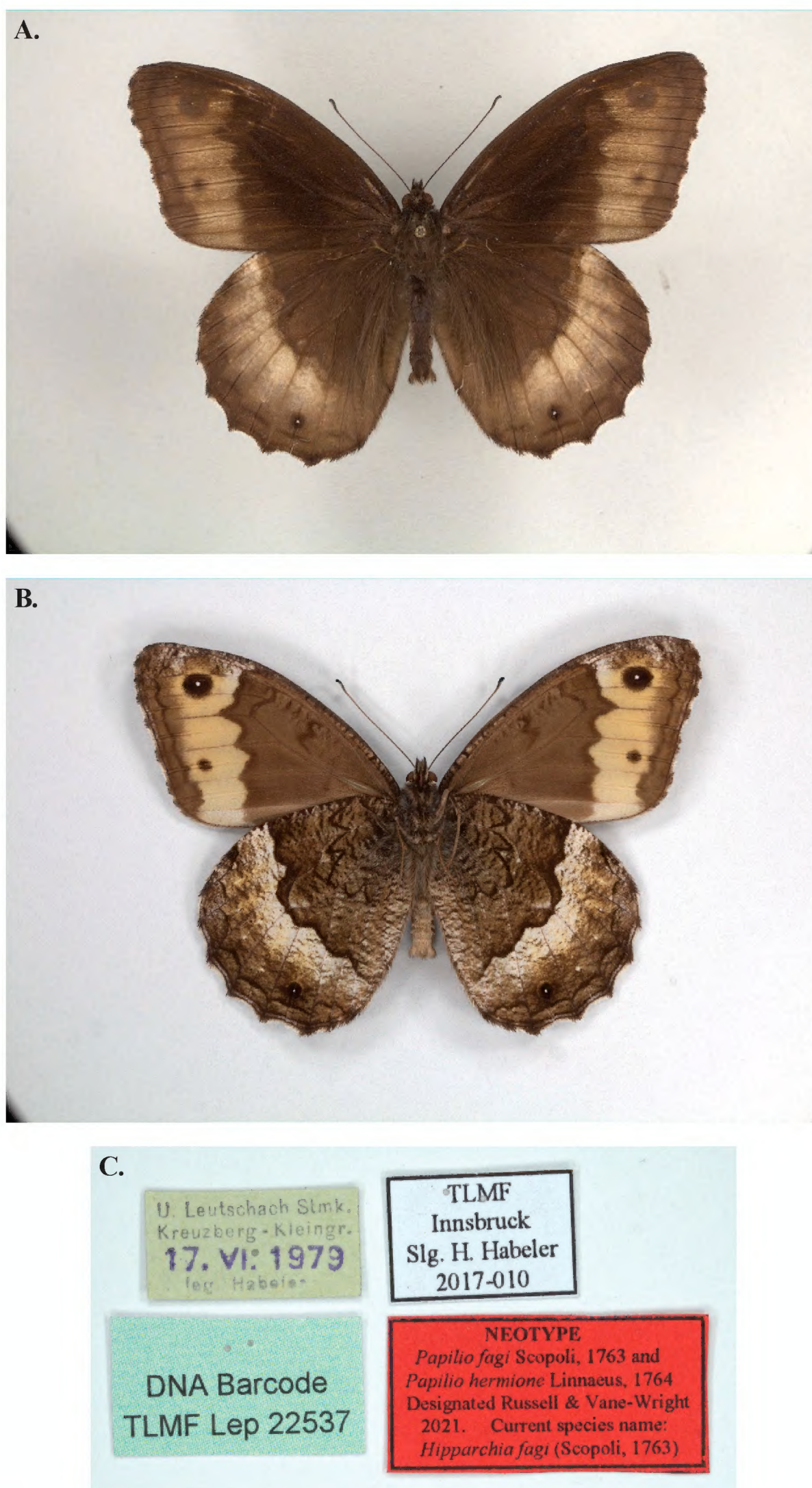


Figure 6. A. Neotype of *Papilio hermione* and *P. fagi*, upperside; B. Neotype of *Papilio hermione* and *P. fagi*, underside; C. Neotype of *Papilio hermione* and *P. fagi*, specimen labels.

in 1767 and, secondly, because this action will reinstate nomenclatural stability by making *P. hermione* an objective junior synonym of *H. fagi*, a synonymy that was almost consistently accepted for over 200 years until destabilised by Kudrna (1977).

A third need for re-establishing the synonymy

Further evidence for the necessity to re-establish this synonymy and thus stability can be seen from the appendices, which include: first, a list of 62 works (including a website) by authors who ignored Kudrna's (invalid) lectotype designation and placed *H. hermione* as a synonym of *H. fagi* (Appendix 1) and, secondly, 26 publications and websites that accepted the lectotype designation by Kudrna (1977) and placed *H. alcyone* as a synonym of *H. hermione* (Appendix 2).

A further consequence of this neotype designation is that the senior name for the Rock Grayling will be re-established as *Hipparchia alcyone* [Denis & Schiffermüller, 1775], a name which a majority of authors still adopt today in preference to '*hermione*' *sensu* Kudrna (see Appendix 1). Note also, however, the issue of separation of *Hipparchia genava* (Fruhstorfer, 1908) from *H. alcyone* at species level (Jutzeler 2021).

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References

- Aurivillius POC (1882) Recensio critica Lepidopterorum Musei Ludovicae Ulricaе quae descripsit Carolus a Linné. Kongl. Svenska Vetenskaps-Akademiens Handlingar 19(5), 188 pp.[, 1 pl.] <https://www.biodiversitylibrary.org/item/135426#page/1/mode/1up>
- Brown FM (1968) Notes about North American butterflies described by Linnaeus in the tenth edition of *Systema Naturae*, 1758. *Journal of the Lepidopterists' Society* 22(2): 77–88. <https://www.biodiversitylibrary.org/item/127718#page/89/mode/1up>
- Butler AG (1868a) An essay towards the arrangement of the genera of the family Satyridæ. *Entomologist's Monthly Magazine* 4(46): 193–197.
- Butler AG (1868b) Catalogue of diurnal Lepidoptera of the family Satyridæ in the collection of the British Museum. Trustees of the British Museum, London, [vi +] 211 pp[, 5 pls].
- Chainey J (MS) Sloane's Lepidoptera collections [working draft]. Natural History Museum London. [unpublished, accessed 8 March 2022]
- Clerck CA (1759, 1764) *Icones Insectorum variorum cum nominibus eorum trivialibus locisque e C. Linnaei Syst. Nat. allegatis*. Section I, 8 pp., pls 1–16 (1759); Section II, 8 pp., pls 17–55 (1764). Holmiae

- [= Stockholm]. [Section III, unpublished, originals present in the Archives section, Center for History of Science, the Royal Swedish Academy of Sciences, Stockholm].
- Cowan CF (1985) The type species of *Hipparchia* Fabricius, 1807 (Lepidoptera: Satyridae). *Entomologist's Gazette* 36: 284.
- Cramer P (1775) *De uitlandsche Kapellen voorkomende in de drie Waereld-Deelen Asia, Africa en America, by een verzameld en beschreeven*. 1, 132 pp., 84 pls SJ Baalde, Amsterdam. <https://doi.org/10.5962/bhl.title.43777>
- Denis M, Schiffermüller I (1775) *Ankündigung eines Systematischen Werkes von den Schmetterlingen der Wienergegend*. Augustin Bernardi, Wien, 322 pp.
- Doubleday E ([1845]) *List of the Specimens of Lepidopterous Insects the Collection of the British Museum* (1). Edward Newman, London, [v +] 150 pp.
- Fabricius JC (1793) *Entomologia systematica emendata et aucta. Secundum classes, ordines, genera, species, adjectis synonymis, locis, observationibus, descriptionibus*. Tome III, part I. C. G. Proft, fil. et soc., Hafniae [= Copenhagen], [vi] + 487 pp. <https://doi.org/10.5962/bhl.title.125869>
- Fabricius JC (1807) In Illiger JKW, *Die neueste Gattungs-Eintheilung der Schmetterlinge aus den linnéischen Gattungen Papilio und Sphinx*. *Magazin für Insektenkunde* 6: 277–295.
- Forster W, Wohlfahrt T (1955) *Die Schmetterlinge Mitteleuropas, Band II: Tagfalter Diurna (Rhopalocera und Hesperiiidae)*. Franckh'sche Verlagshandlung, Stuttgart, [viii +] 126 pp[+ 28 pls].
- Hemming F (1967) The generic names of the butterflies and their type-species (Lepidoptera: Rhopalocera). *Bulletin of the British Museum (Natural History) Entomology, Supplement* (9), 475 pp. <https://www.biodiversitylibrary.org/page/40874308#page/7/mode/1up>
- Higgins LG (1963) *Entomologia Carniolica*: J. A. Scopoli, 1763. *Journal of the Society for the Bibliography of Natural History* 4(3): 167–169. https://doi.org/10.3366/jsbnh.1963.4.Part_3.167
- Higgins LG, Riley ND (1978) The Rock Grayling, *Hipparchia alcyone* (Denis & Schiffermüller, 1775) (Lepidoptera: Satyridae). *Entomologist's Gazette* 29: 51–52.
- Hoffmansegg JCG von (1804) *Alphabetisches Verzeichniss zu J. Hübner's Abbildungen der Papilionen mit den beigefügten vorzüglichsten Synonymen*. *Magazin für Insektenkunde* 3: 181–206.
- Honey MR, Scoble MJ (2001) Linnaeus's butterflies (Lepidoptera: Papilionoidea and Hesperioidea). *Zoological Journal of the Linnean Society* 132(3): 277–399. <https://doi.org/10.1006/zjls.2001.0265>
- Horn W, Kahle I (1936) *Über entomologische Sammlungen*. Part 2. *Entomologische Beihefte aus Berlin-Dahlem* 3: 161–296[+ pls 17–26].
- ICZN (1999) *International code of zoological nomenclature* (4th edn). International Commission on Zoological Nomenclature, London, 306 pp. [see also] <https://www.iczn.org/the-code/the-code-online/>
- International Commission on Zoological Nomenclature (1958) Opinion 516 Determination under the Plenary Powers of the relative precedence to be assigned to certain works on the Order Lepidoptera (Class Insecta) published in 1775 by Pieter Cramer, Michael Denis & Ignaz Schiffermüller, Johann Christian Fabricius, Johann Casper Fuessly, and S. A. von Rottemburg, respectively. *Opinions and Declarations Rendered by the International Commission on Zoological Nomenclature* 19(1): 1–44.
- Jutzeler D (2021) Doubts about the validity of the species name *Hipparchia hermione* (Linnaeus, 1764), it being associated with the two species *Hipparchia alcyone* ([Denis & Schiffermüller], 1775) and *Hipparchia genava* (Fruhstorfer, 1908) following the designation of a lectotype by Kudrna (1977) (Lepidoptera: Nymphalidae, Satyrinae). *Entomologica Romanica* 25: 15–30. <https://doi.org/10.24193/entomolrom.25.3>
- Kirby WF (1871) *A synonymic catalogue of diurnal Lepidoptera*. Van Voorst, London, [vii +] 690 pp. <https://www.biodiversitylibrary.org/item/44580#page/7/mode/1up>
- Koçak AÖ (1983) On the nomenclature of the genus *Hipparchia* Fabricius, 1807. *Priamus* 2: 166–169.
- Kudrna O (1977) *A revision of the genus Hipparchia Fabricius*, Classey, Farringdon, Oxon, 300 pp.
- Kudrna O (1984) On the taxonomy of the genus *Hipparchia* Fabricius, 1807, with descriptions of two new species from Italy. *Fragmenta entomologica* 17: 229–243. http://www.satyrinae.yolasite.com/resources/Scientific_papers/The%20Taxonomy%20of%20the%20Genus%20Hipparchia.pdf

- Kudrna O (2001) Miscellaneous notes on the taxonomy of four European butterflies (Lepidoptera: Rhopalocera). *Entomologist's Gazette* 52: 253–261.
- Linnaeus C (1764) *Museum S:ae R:ae M:tis Ludovicae Ulricae Reginae Svecorum, Gothorum, Vandalorumque ... in quo animalia rariora, exotica, imprimis Insecta & Conchilia describuntur & determinantur. Prodrumi instar editum*. L. Salvius, Holmiae [= Stockholm], [viii +] 720 [+ 2] pp. <https://www.biodiversitylibrary.org/item/209402#page/7/mode/1up>
- Linnaeus C (1767) *Systema Naturae per Regna Tria Naturae, secundum classes, ordines, genera, pecies, Laurentii Salvii*, Holmiae [= Stockholm], Tomus 1, Pars II: 533–1327. <https://doi.org/10.5962/bhl.title.157601>
- Petiver J (1702) *Gazophylacii naturae & artis. Decas prima*: 1–16, 10 pls. Christopher Bateman, London.
- Rösel von Rosenhoff AJ (1761) *Der monatlich-herausgegebenen Insecten-Belustigung* 4, 268 pp. J. J. Fleischmann, Nürnberg.
- Soban B (2005) *Living bond between Idrija and Uppsala*. Slovenija Svet, Slovene Emigrant Association, Ljubljana, 2 pp.
- Thunberg CP (1804) *Museum Naturalium Academiae Upsaliensis. Dissertationes*, Part XXIII: [i–ii], 12 pp. Typis Edmannianis, Upsaliae.
- Turton W (1806) *A general system of nature. Animal kingdom*, 3, Insects part 2. Order 3. Lepidoptera. Lackington, Allen, & Co, London, frontispiece + 376 pp.
- Verity R (1913) Revision of the Linnean types of Palaearctic Rhopalocera. *Journal of the Linnean Society (Zoology)* 32(215): 173–191. <https://www.biodiversitylibrary.org/item/100259#page/239/mode/1up>
- Verity R (1953) *Le farfalle diurne d'Italia*, 5, Nymphalidae: Satyrinae. Marzocco, Firenze, 354 pp. [+ col. pls 55–74 + b/w. pls XXI–XXVI]

Appendix 1

A list of publications after 1977 and a website which have ignored the lectotype designation by Kudrna, 1977 and continued to use *Hipparchia alcyone* for the ‘Rock Grayling’ as opposed to *H. hermione*, and/or continue to synonymise *H. hermione* with *H. fagi*.

- Aarvik L, Berggren K, Hansen LO (2000) *Catalogus Lepidopterorum Norvegiae*, Zoologisk Museum, Oslo, 192 pp.
- Bartonova A, Benes J, Konvicka M (2014) Generalist-specialist continuum and life history traits of Central European butterflies (Lepidoptera) – are we missing a part of the picture? *European Journal of Entomology* 111(4): 543–553.
- Baz A, Cifrián B, Martín-Vega D, Baena M (2010) Phytophagous insects captured in carrion-baited traps in central Spain. *Bulletin of Insectology* 63(1): 21–30.
- Bolz R, Geyer A (2001) Zur Bestandessituation des Kleinen Waldpförtners (*Hipparchia alcyone* [D.S.] 1775) in Bayern. *Schriftenreihe Bayer. Landesamtes für Umweltschutz* 156: 355–365.
- Carter D (1982) *Butterflies & Moths in Britain and Europe*, Pan Books, London, 192 pp.
- Chevreau J, Cherpitel T, Banasiak M, Herbrecht F (coord.), Bouteloup R, Courant S, Drouet E, Durand O, Duval O, Fisenne H, Guilloton J-A, Nicolle M, Oger B (2021) *Liste rouge régionale des Papillons de jour et des Zygènes de Pays de la Loire. Rapport technique*, Document financé par la DREAL Pays de la Loire et la Région Pays de la Loire, 30 pp.
- Coutsis JG (1984) Description of the Female Genitalia of *Hipparchia fagi* Scopoli, *Hipparchia semele* Linnaeus (Satyridae) and their related taxa. *Journal of Research on the Lepidoptera* 22(3): 161–203.
- Dziekańska I, Sielezniew M (2008) Butterflies (Lepidoptera: Hesperioidea, Papilionoidea) of the Kampinos National Park and its buffer zone. *Fragmenta Faunistica* 51(2): 107–118.

- Ebert G (2005) Die Schmetterlinge Baden-Württembergs, Band 10: Ergänzungsband, Eugen Ulmer Verlag, Stuttgart, 426 pp.
- Eller O, Rennwald E (2007). Kleiner Waldportier – *Hipparchia alcyone* [Denis & Schiffermüller], 1775 in Schulte *et al.* (2007), Die Tagfalter der Pfalz, Band 2, Fauna und Flora in Rheinland-Pfalz, Beiheft, 37: 672–677.
- Embacher G (2000) Die Grossschmetterlinge des lands Salzburg, Land Salzburg, 92 pp.
- Essayan R, Ruffoni A (2012) Constitution d’une liste rouge des papillons de jour de Bourgogne (Rhopalocera & Zygaenidae). *Revue scientifique Bourgogne-Nature* 16: 94–109.
- Fartmann T, Hermann G (2006) Larvalökologie von Tagfaltern und Widderchen in Mitteleuropa – von den Anfängen bis heute. – In: *Fartmann T, Hermann G (Hrsg.) (2006): Larvalökologie von Tagfaltern und Widderchen in Mitteleuropa. Abhandlungen aus dem Westfälischen Museum für Naturkunde*, 68(3/4): 11–57.
- Gaedike R, Nuss M, Steiner AR, Trusch R (eds) (2017) Verzeichnis der Schmetterlinge Deutschlands (Lepidoptera). 2. überarbeitete Auflage. *Entomologische Nachrichten und Berichte*, Beiheft 21: 1–362.
- García-Barros E (2000) Comparative data of the adult biology, ecology and behavior (sic) of species belonging to the genera *Hipparchia*, *Chazara* and *Kanetisa* in central Spain (Nymphalidae: Satyrinae). *Nota Lepidopterologica* 23(2): 119–140.
- García-Barros E (2006) Within and between species scaling in the weight, water, carbon and nitrogen contents of eggs and neonate larvae of twelve satyrine butterflies (Lepidoptera: Nymphalidae). *European Journal of Entomology* 103: 559–568.
- García-Barros E, Munguira ML, Stefanescu C, Moreno AV (2013) Fauna Ibérica 37, Lepidoptera, Papilionoidea, Museo Nacional de Ciencias Naturales Consejo Superior de Investigaciones Científicas Madrid, 1216 pp.
- Gelbrecht J, Eichstädt D, Göritz U, Kallies A, Kühne L, Richert A, Rödel I, Sobczyk T, Weidlich M (2001) Gesamtartenliste und Rote Liste der Schmetterlinge (Macrolepidoptera) des Landes Brandenburg. *Naturschutz u. Landschaftspflege in Brandenburg* 10(3): 1–62.
- Gergely P, Hudák T (2021) Revision of Threatened Butterfly Species in Hungary (Lepidoptera: Rhopalocera). *Lepidopterologica Hungarica* 17(1): 27–39.
- Gibeaux CA (2011) Données sur la systématique et la repartition française présente et passé des *Hipparchia* de groupe *fagi* (Lepidoptera Nymphalidae Satyrinae). *Alexanor* 24(5): 261–354.
- Gibeaux CA (2013) Confirmation de l’indigénat d’*Hipparchia alcyone* D. & S., 1775, en Île-de-France (Lepidoptera Nymphalidae Satyrinae). *Alexanor* 25(5): 295–296.
- Goodden R, Goodden R (2016) Green Guide to Butterflies of Britain and Europe, Bloomsbury Publishing, London, 112 pp.
- Jutzeler D (2006) Confirmation de la dualité du ‘Petit Sylvandre’ diagnostiquée par Leraut (1990). 3ème partie: figurations d’*Hipparchia alcyone* D. & S. (1775) et d’*H. genava* Fruhstorfer (1908) dans la littérature (Lepidoptera Nymphalidae Satyrinae). *Linneana Belgica* 20(6): 229–233.
- Jutzeler D (2021) Doubts about the validity of the species name *Hipparchia hermione* (Linnaeus, 1764), it being associated with the two species *Hipparchia alcyone* ([Denis & Schiffermüller], 1775) and *Hipparchia genava* (Fruhstorfer, 1908) following the designation of a lectotype by Kudrna (1977) (Lepidoptera: Nymphalidae, Satyrinae). *Entomologica Romanica* 25: 15–30.
- Jutzeler D, Lafranchis T, Olivares J, Volpe G, Milone M, Fulgione D (2002) Trois taxons du complexe d’*Hipparchia alcyone* (Denis & Schiffermüller, 1776) en comparaison: ssp. *vandalusica* (sensu Oberthür, 1894, nec Leraut, 1990) ssp. *pyrenaca* (Oberthür, 1894) et *alcyone* de l’Italie méridionale (Lepidoptera: Nymphalidae, Satyrinae). *Linneana Belgica* 18(6): 273–288.
- Jutzeler D, Volpe G (2005) Confirmation de la dualité du ‘Petit Sylvandre’ diagnostiquée par Leraut (1990). 1ère partie: clarifications nomenclaturales et comparaison des stades larvaires d’*Hipparchia alcyone* Denis

- & Schiffermüller (1775) et d'*H. genava* Fruhstorfer (1908) (Lepidoptera: Nymphalidae, Satyrinae). *Linneana Belgica* 20(4): 145–160.
- Jutzeler D, Volpe G (2006) Confirmation de la dualité du ‘Petit Sylvandre’ diagnostiquée par Leraut (1990). 2ème partie: Comparaison des caractères alaires et des genitalia d'*Hipparchia alcyone* D. & S. (1775) et d'*H. genava* Fruhstorfer (1908) (Lepidoptera Nymphalidae Satyrinae). *Linneana Belgica* 20(5): 193–206.
- Karsholt O, Razowski J (eds) (1996) *The Lepidoptera of Europe: a distributional checklist*, Apollo Books, Stenstrup, 380 pp.
- Kwast E, Sobczyk T (2000) Ecological requirements and distribution of *Hipparchia alcyone* (Denis & Schiffermüller, 1775) in the Federal Republic of Germany (Lep., Satyridae). *Entomologische Nachrichten und Berichte* 44(2): 89–99.
- Lafranchis T (2016) *Papillons de France*, Diatheo, Montpellier, 351 pp.
- Leraut P, Leraut G (2018) Inventaire des Lépidoptères les plus notables observés récemment dans le Parc du Mercantour et ses environs immédiats (Insecta Lepidoptera). *Alexanor* 28(4) Supplement: 121–142.
- Lévêque A, Leccia M-F, Lebard T (2018) L'étude et l'inventaire des Papillons dans le Parc National de Mercantour. *Alexanor* 28(4) Supplement: 7–24.
- Luquet G-C (2018) Lépidoptères observés durant le mois d'août 1964 à Saint-Martin-Vésubie et dans les environs (Alpes-Maritimes) (Lepidoptera Rhopalocera et Heterocera). *Alexanor* 28(4) Supplement: 25–52.
- Marabuto E, Pires P, Cardoso JP (2004) Contribuição para o conhecimento dos Macrolepidópteros do Parque Natural da Serra Estrela, Portugal (Lepidoptera). *Boletín de la Sociedad Entomológica Aragonesa* 34: 171–175.
- Meyer M (1986) Excursion du Groupe de Travail Entomologique aux sites xérothermiques près de Pagny-la-Blanche-Côte (France, dépt. Meuse). *Päiperlek* 8(2): 30–41.
- Misja K (2005) Fluturat e Shqipërisë. Macrolepidoptera (Rhopalocera, Bombyces & Sphinges, Noctuidae, Geometridae). *Akademia e Shkencave e Shqipërisë, Instituti i Kërkimeve Biologjike, Tiranë*, 247 pp. [in Albanian].
- Misja K, Kurrizi A (1984) Resultats des recherche des papillons diurnes (Rhopalocera, Grypocera) de notre pays. *Buletini i Shkencave te Natyres* 12: 105–111.
- Möllenbeck V, Herman G, Fartmann T (2009) Does prescribed burning mean a threat to the rare satyrine butterfly *Hipparchia fagi*? Larval-habitat preferences give the answer. *Journal of Insect Conservation* 13: 77–87.
- Nyst RH (1981) Encore *Hipparchia fagi* Scopoli & *Hipparchia alcyone* Denis & Schiffermüller (Satyridae). *Cercle des Lepidopteristes de Belgique Bulletin* 106: 88–92.
- Oxford University Museum of Natural History (2021) *Iconotypes. A compendium of butterflies & moths. Jones' Icones complete*, Thames & Hudson, London, 688 pp.
- Perrette LN, Spill F, Rauch M (2009). Les Papillons de la Réserve de la Biosphère des Vosges du Nord. *Ciconia* 33: 1–324.
- Pinzari M (2009) Corteggiamento e meccanismi di isolamento riproduttivo in due specie criptiche de farfalle del genere *Hipparchia*. *Dottorato di Ricerca in Biologia Evoluzionistica ed Ecologia* 21: 1–219.
- Reinhardt R, Sbieschne H, Settele J, Fischer U, Fiedler G (2007) *Tagfalter von Sachsen. Beiträge zur Insektenfauna Sachsens* 6, 524 pp.
- Rennwald E (2018) Systematisch geordnete Liste der Schmetterlinge mit deutschen Namen im Lepiforum, [pp. unnumbered, Species no. 7430].
- Settele J, Shreeve T, Konvička M, Van Dyck H (eds) (2009) *Ecology of Butterflies in Europe*, Cambridge University Press, Cambridge, xii + 513 pp.
- Sinev SYu (ed.) (2008) *Katalog Cheshuekrylykh (Lepidoptera) Rossii*. [Catalogue of the Lepidoptera of Russia], St. Petersburg & Moscow, 424 pp. [in Russian].

- Sinev SYu (ed.) (2019) Katalog Cheshuekrylykh (Lepidoptera) Rossii. [Catalogue of the Lepidoptera of Russia]. Edition 2, St. Petersburg 448 pp. [in Russian].
- Skalski AW (2002) Disappearing and endangered butterfly species Ropalocera (Papilionoidea + Hesperioidea) of the central part of Poland. *Folia Biologica et Oecologica* 1: 169–182.
- Steiniger H, Eitschberger U (1982) Über ein sympatrisches Vorkommen von *Hipparchia fagi* (Scopuli [sic], 1763) und *Hipparchia alcyone* (Denis & Schiffermüller, 1775) in Spanien (Lep., Satyridae). *Atalanta* 13(1): 66–71.
- Sterry P, Mackay A (2004) Pocket Nature, Butterflies and Moths, Dorling Kindersley Ltd., London, 224 pp.
- Striniqi-Laçež A (2008) Some threatened and risked insects in the region of Shkodra and Malesia e Madhe, *Natura Montenegrina* 7(3): 481–492.
- Striniqi-Laçež A, Misja K (2013) An overview of threatened and risked entomofauna of Northern Albania. *Journal of Environmental Research and Development* 8(1): 40–49.
- SwissLepTeam (2010) Die Schmetterlinge (Lepidoptera) der Schweiz: eine kommentierte, systematisch-faunistische Liste. Centre Suisse de Cartographie de la Faune (CSCF) & Schweizerische Entomologische Gesellschaft, Neuchâtel, Fauna Helvetica, 25, 350 pp.
- Tolman T, Lewington R (1997) Collins Field Guide to the Butterflies of Britain & Europe, Harper Collins, London, 320 pp.
- Tolman T, Lewington R (2008) Collins Butterfly Guide, Harper Collins, London, 384 pp.
- Vallhonrat F, Cervelló A, Martí J, Joaquim J, De-Gregorio P, Xaus A (2007) Els lepidòpters del Parc Natural de la Serra de Montsant, Societat Catalana de Lepidopterologia, Barcelona, 33 pp.
- Van Swaay C, Warren M (1999) Red data book of European Butterflies (Rhopalocera), Nature & Environment Series 99, Council of Europe, Luxembourg, 260 pp.
- Van Swaay C, Warren M, Lois G (2006) Biotope use and Trends of European Butterflies. *Journal of Insect Conservation* 10: 189–209.
- Volpe G, Jutzeler D (2001) Différentiation spécifique d'*Hipparchia fagi* (Scopoli, 1763) et d'*Hipparchia alcyone* ([Denis & Schiffermüller], 1775) de Campanie (Italie et des régions limitrophes) selon les caractères des ailes, des armatures génitales, de l'oeuf et de la chenille (Lepidoptera: Nymphalidae, Satyrinae). *Linneana Belgica* 18(1): 1–26.
- Whalley P (1983) Butterflies, Mitchell Beazley Publishers Ltd., London, 168 pp.
- Zaňková B, Jakubikova L, Kadlec T (2013) Poster: Etology (sic) and habitat preferences of the critically endangered rock grayling (*Hipparchia alcyone*). Conference: Kostelecke inspirovani at: Kostelec nad Cernymilesy, Czech Republic.
- Website: (accessed 4.04.2022) https://lepiforum.org/wiki/page/Hipparchia_alcyone

Appendix 2

A list of publications or websites in which the authors accepted Kudrna's designation and used the name *H. hermione* for the 'Rock Grayling'.

- Aarvik L, Bengtsson BÅ, Elven H, Ivinskis P, Jürivete U, Karsholt O, Mutanen M, Savenkov N (2017) Nordic-Baltic Checklist of Lepidoptera. *Norwegian journal of Entomology Supplement* (3): 1–236.
- Baz A, Garcia-Boyer A (1995) The effects of forest fragmentation on butterfly communities in central Spain. *Journal of Biogeography* 22: 129–140.
- Bink FA (1992) Ecologische Atlas van de Dagvlinders van Noordwest-Europa. Schuyt & Co., Haarlem, 512 pp.

- Bonelli S, Barbero F, Casacci LP, Cerrato C, Balletto E (2015) The butterfly fauna of the Italian Maritime Alps: results of the EDIT project. *Zoosystema* 37: 139–167.
- Bubova T, Vrabec V, Kulma M, Nowicki P (2015) Land management impacts on European butterflies of conservation concern: a review. *Journal of Insect Conservation* 19: 805–821.
- Cuvelie, S, Parmentier L, Paparisto A, Couckuyt J (2018) Butterflies of Albania- Fluturat e Shqipërisë. New surveys, new species and a new checklist (Lepidoptera: Papilionoidea). *Phegea* 46(2): 48–69. [Used both names]
- Kudrna O (2002) The distribution Atlas of European Butterflies. *Oedippus* 20: 1–343. [p. 178]
- Kudrna O, Harpke A, Lux K, Pennerstorfer J, Schweiger O, Settele J, Wiemers M (2011) Distribution Atlas of Butterflies of Europe, Gesellschaft für Schmetterlingsschutz e. V., Halle, 576 pp. [p. 244]
- Kudrna O, Pennerstorfer J, Lux K (2015) Distribution Atlas of European Butterflies and Skippers, Wissenschaftlicher Verlag PEKS e. K., Schwanfeld, 632 pp. [p.466]
- Leraut P (2016) Butterflies of Europe and neighbouring regions. NAP Editions, Paris, 1115 pp. [p. 932]
- Pinzari M, Santonico M, Pennazza G, Martinelli E, Capuano R, Paolesse R, Di Rao M, D'Amico A, Cesaroni D, Sbordon V, Di Natale C (2018) Chemically mediated species recognition in two sympatric Grayling butterflies: *Hipparchia fagi* and *Hipparchia hermione* (Lepidoptera: Nymphalidae, Satyrinae). *PLOS One* 13(6): e0199997. <https://doi.org/10.1371/journal.pone.0199997>.
- Pinzari M, Sbordon V (2013) Species and mate recognition in two sympatric Grayling butterflies: *Hipparchia fagi* and *Hipparchia hermione genava* (Lepidoptera). *Ethology Ecology & Evolution* 25(1): 28–51.
- Tshikolovets VV (2011) Butterflies of Europe and the Mediterranean area, Tshikolovets Publications, Pardubice, 544 pp. [p. 422]
- Van Swaay C, Cuttelod A, Collins S, Maes D, López Munguira M, Šašić M, Settele J, Verovnik R, Verstrael T, Warren M, Wiemers M, Wynhof I (2010) European Red List of Butterflies, Luxembourg: Publications Office of the European Union, 47 pp.
- Vila R, Pellicchia M, Pesce GB (2009) Farfalle d'Italia, Istituto per I beni artistici, culturali e naturali della regione Emilia-Romagna, Bologna, 375 pp.
- Wiemers M, Balletto E, Dincă V, Fric ZF, Lamas G, Lukhtanov V, Munguira ML, van Swaay CAM, Vila R, Vliegenthart A, Wahlberg N, Verovnik R (2018) An updated checklist of the European Butterflies (Lepidoptera, Papilionoidea). *Zookeys* (811): 9–45.

Websites: (accessed 31.01.2022)

https://ftp.funet.fi/index/Tree_of_life/insecta/lepidoptera/
[https://en.wikipedia.org/wiki/List_of_butterflies_of_Europe_\(Nymphalidae\)#Subfamily_Satyrinae](https://en.wikipedia.org/wiki/List_of_butterflies_of_Europe_(Nymphalidae)#Subfamily_Satyrinae)
<http://www.eurobutterflies.com>
<http://www.pyrgus.de/> (as a synonym of *H. alcyone*!!)
<https://www.gbif.org/>
<https://www.guypadfield.com/>
<https://www.hantsmoths.org.uk/>
<https://observation.org/>
<https://commons.wikimedia.org/>
<https://www.ufz.de/european-butterflies/index.php?de=43003>